

QuaMMMELOT



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UNIVERSITÀ
DEGLI STUDI
FIRENZE
SCIFOPSI
CONFERENZA NAZIONALE
SOPRA LA FORMAZIONE
E PSICOLOGIA



VIFIN



Ministero dell'Istruzione, dell'Università e della Ricerca
Ufficio Scolastico Regionale per la Toscana



Qualification for Minor Migrants Education and Learning Open access – On line Teacher-training
n. 2017-1-IT02-KA201-036610 - Erasmus + 2014-2020

Module “Mathematics”

Regional Directorate
for Primary and Secondary Education of Attica

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Magdalini Mavroudi, Asimina Rokka, Athanasios Strantzalos

What we have seen and learned by the trainees.....

A Presentation in the framework of the **Multiplier Event**,
Athens,24-01-2020

The members of the Mathematics Pedagogical Team, supervising the assignments:

Magdalini Kokkaliari

Eleni Limperopoulou

Athanasios Strantzalos

Description of Module 6: Mathematics

Step 1:

The module presents

**An Introductory course -
Mathematics.**

Step 2:

Thereafter,

**three educational scenarios,
one activity without words
and photos from school
while students learn by
playing** have been created as
examples.

The assignment

A. Assume that you are a teacher who is asked to teach Mathematics in a lower Secondary Education class (12-15 year-old students, refugee-immigrant students included).

- *To begin with, choose a mathematical notion that is part of the curriculum of secondary classes and make a brief analysis of the cognitive content.*
- *Determine the characteristics of the student group: how many years they have been attending the host country's educational system and what is their previous school experience.*

B. Create an educational scenario for part A

- *Apply it to the classroom.*
- *Finally present an assessment of your didactic intervention. This may include comments, recordings, photos, written papers, and anything else that could substantiate the assessment.*

The Mathematics Module Trainees

Out of thirty seven trainees who completed the QuaMMELOT Project, twenty eight have chosen to attend the Mathematics Module 6 and submit their assignment. The twenty eight trainees included:

- **almost all of the Greek participants (20 out of 21),**
- **the majority of Spanish (7 out of 9)**
- **and one Italian (1 out of 7).**

They mentioned they are:

- Teachers in Primary Schools
- From Secondary Education Sector teachers who teach Languages, Mathematics, Science, Sociology, Art, Sports, Computer Science

Their students

Our trainees' students, who are 12-17 years old of refugee and migrant background,

study in

- mixed classes
- reception classes
- mainstream classes

of schools, from lower and higher secondary education, both General and Vocational, but also there are students with special educational needs who have 1:1 study sessions with a tutor.

From Team Teaching.....

The teachers designed and implemented their scenario

- on their own,
- or frequently in collaboration with their colleagues who teach other subjects, such as Language, Literature, Arts, Mathematics, Sports, Computer science, Sciences.....
- in pairs,
but also sometimes as
- a team of three, or even four

Their didactical scenarios support Team Teaching by two equally involved teachers , but also support.....

Interdisciplinarity

27.11.2019

ΠΟΣΟΣΤΑ ΕΚΛΟΓΩΝ ΠΕΝΤΑΜΕΛΟΥΣ

Δικαιώματα ψηφίου 25 ψηφίων: 18

Ποσοστό συμμετοχής

$$\frac{18}{25} \cdot 100 = 72\%$$

ΑΡΙΩΡ = $\frac{12}{18} \cdot 100 = 66,7\%$

ΣΑΚΑΡ = $\frac{4}{10} \cdot 100 = 40\%$

ΙΟΥΛΙΑ = $\frac{2}{4} \cdot 100 = 50\%$

ΒΛΑΥΤ = $\frac{1}{2} \cdot 100 = 50\%$

ΜΑΧΝΤΙ = $\frac{1}{2} \cdot 100 = 50\%$

Είναι

ΦΥΛΑΚΟ ΕΡΓΑΣΙΑΣ 10 ΕΠΙΧΟΡΗΓΟΥΜΕΝΗ

ΕΥΡΕΘΗ ΤΑΙ ΡΟΓΟΣ ΣΑΝ ΜΕΣΑ ΟΡΩΝ ΣΑΝ ΤΕΡΗ

1) ΜΕΡΗΝΗ ΚΥΚΛΙΚΗΣ ΠΕΡΙΦΕΡΕΙΑΣ ΑΛΟΥΜΙΝΙΝΙΟΥ ΚΟΥΤΙΟΥ, ΤΥΛΙΣΣΕ ΕΝΑ ΠΙΣΤΩ ΑΚΟΥΣΙΩΣ 10 ΦΟΡΕΣ ΧΩΡΩ ΑΠΟ ΕΝΑ ΑΓΟΥΜΙΝΕΝΟ ΚΟΥΤΙ. ΚΑΤΑΧΡΑΦΤΕ ΤΗΝ ΠΙΛΗ ΔΕ ΕΡΑΤΟΣΕΙ:

ΣΑΡΑ-ΑΛΙ	215	ΑΚΡΙΒΩΣ
ΜΑΡΙΑ	199	ΕΚΤΙΜΩΣΗ ΤΟΥ "ΑΝΘΡΩΠΟΥ"
ΣΑΜΠΟΥ	199	ΤΑ ΧΑΡΗ ΣΤΗ ΜΕΤΡΗ ΣΥΝΕΙΝΑΙ
ΑΓΙ-ΜΑΡΤΙΝ	216	ΤΟΧΑΙΑ ΠΙΟ ΠΑΝΩ Η ΠΡΟ
ΗΛΙΑΣ	214	ΚΑΤΩ; ΜΕ ΤΟ ΜΕΣΟ ΟΡΟ
ΜΕΡΕΤΣΑ	190	ΤΟ ΠΑΝΩ ΜΕΣΟ ΚΑΤΩ
1037	10	ΑΚΥΡΩΝΟΥΤΑΙ.

Σύνολο

2) Ποιά τιμή είναι η καλύτερη; Γιατί; ΑΥΤΗ ΠΟΥ ΕΙΝΑΙ ΠΕΡΙΠΟΝ ΣΤΗ ΚΕΤΥ ΤΩΤΑ ΠΟΥ ΕΙΝΑΙ

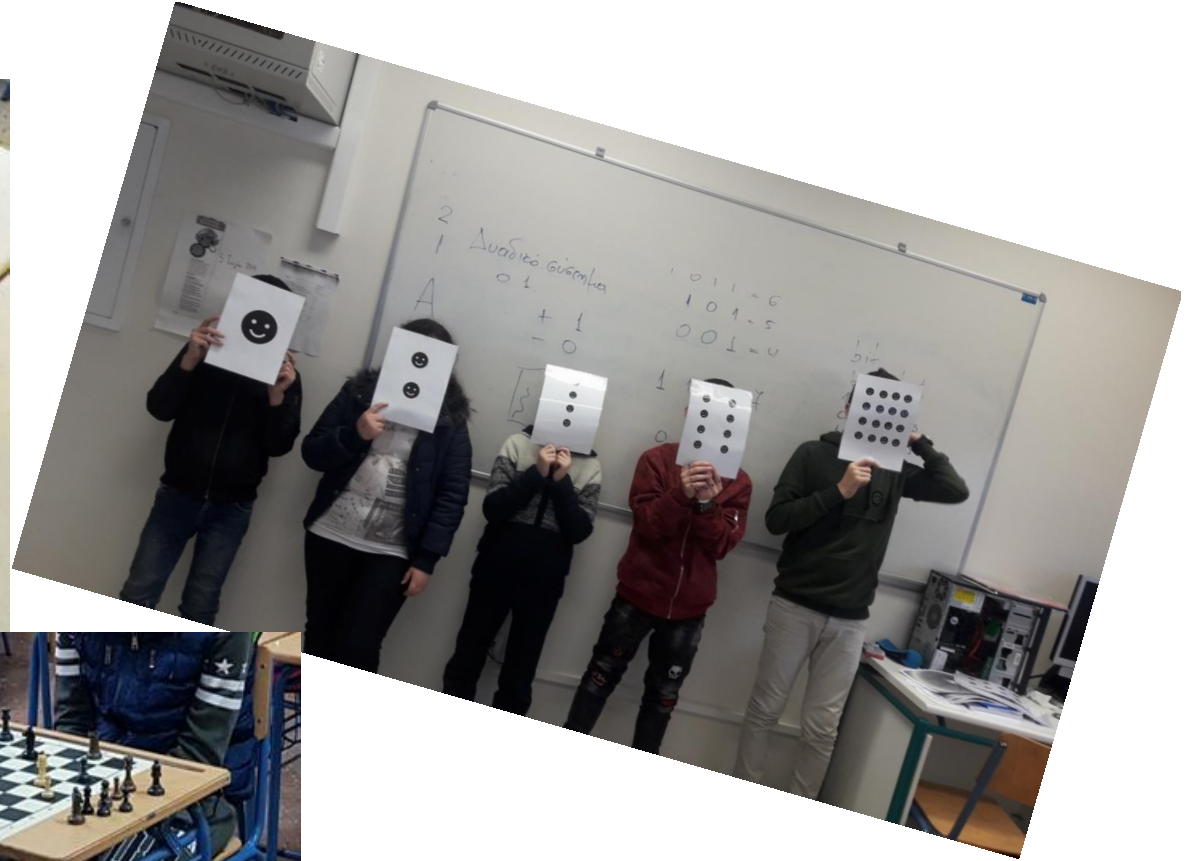
3) Βρες το άθροισμα των τιμών και διαίρεσε με το πηλίκο τους. Αυτό που θα βρεις είναι ο μέσος όρος.

$$\frac{11}{5} = 2,2$$

4) Γιατί ο μέσος όρος είναι η "καλύτερη αξία"; Ο ΜΕΣΟΣ ΟΡΟΣ ΕΙΝΑΙ Η ΠΙΟ ΑΚΡΙΒΗΣ

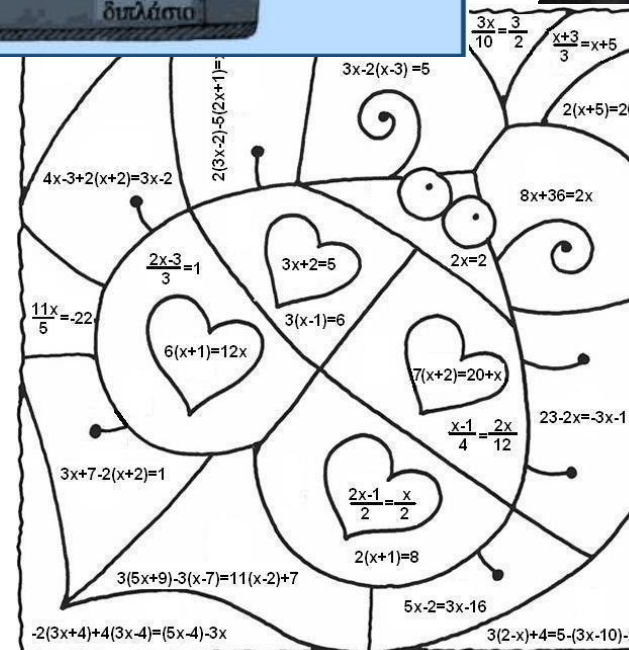
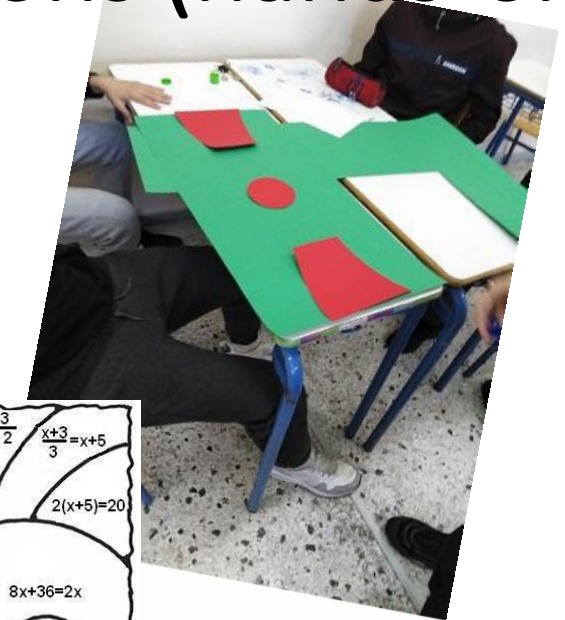
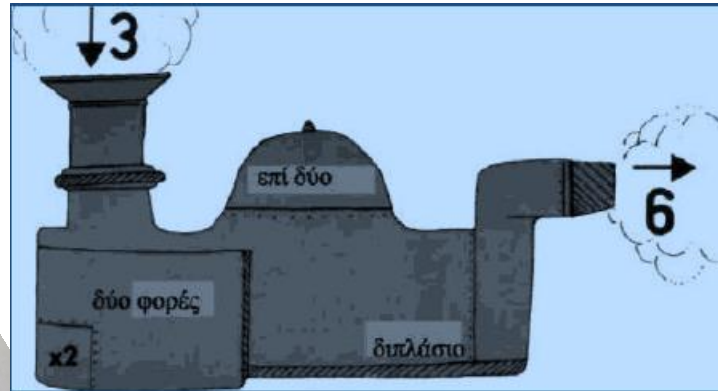
5) Διαίρεσε με το 10 για να βρεις την επίδοση στην επίδοση. 207-10=20,7

..... to Collaborative Learning and Peer Tutoring

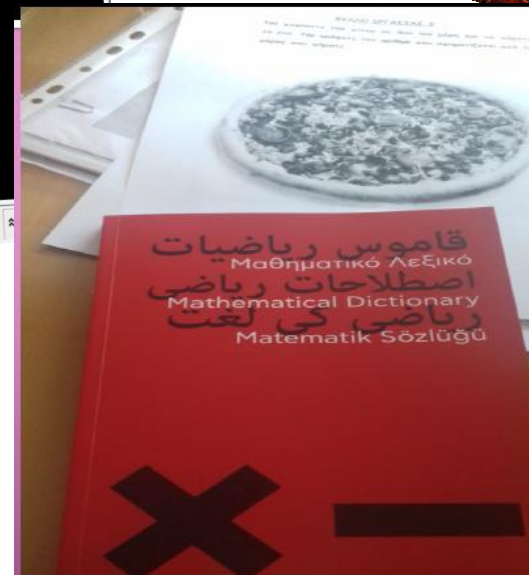
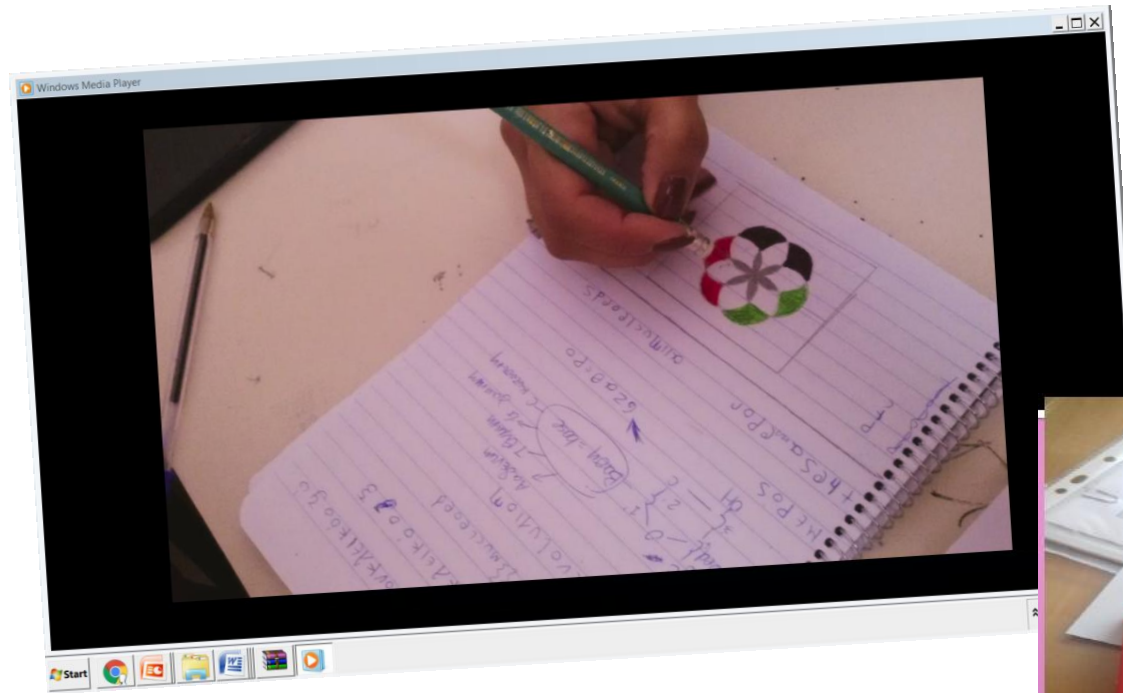


Experiential Learning

Playing Games, dancing and constructions (hands-on)

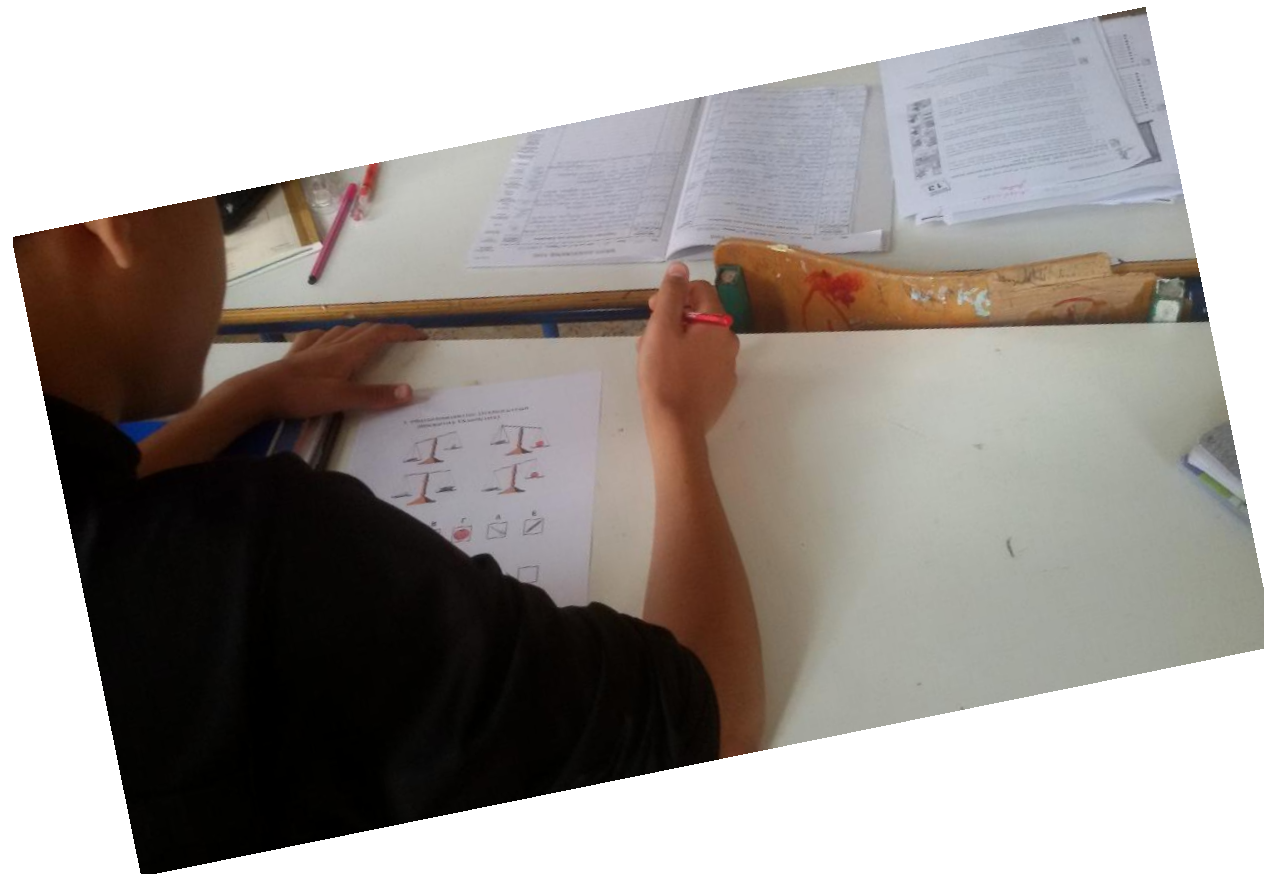
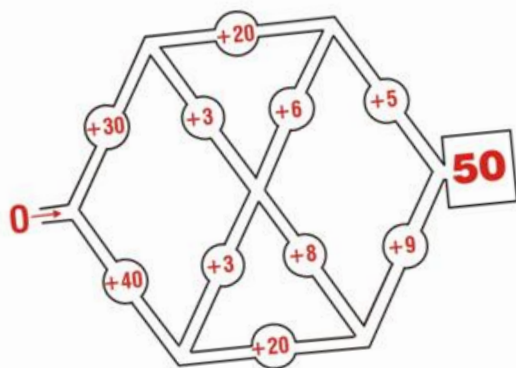
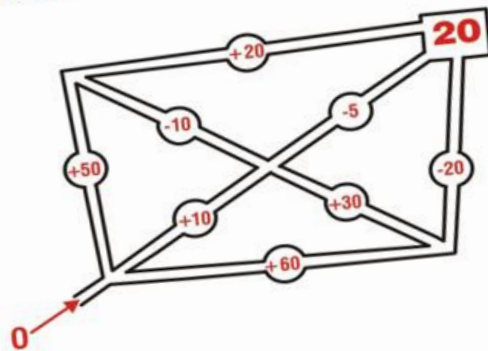


Based on respect of the 'different'

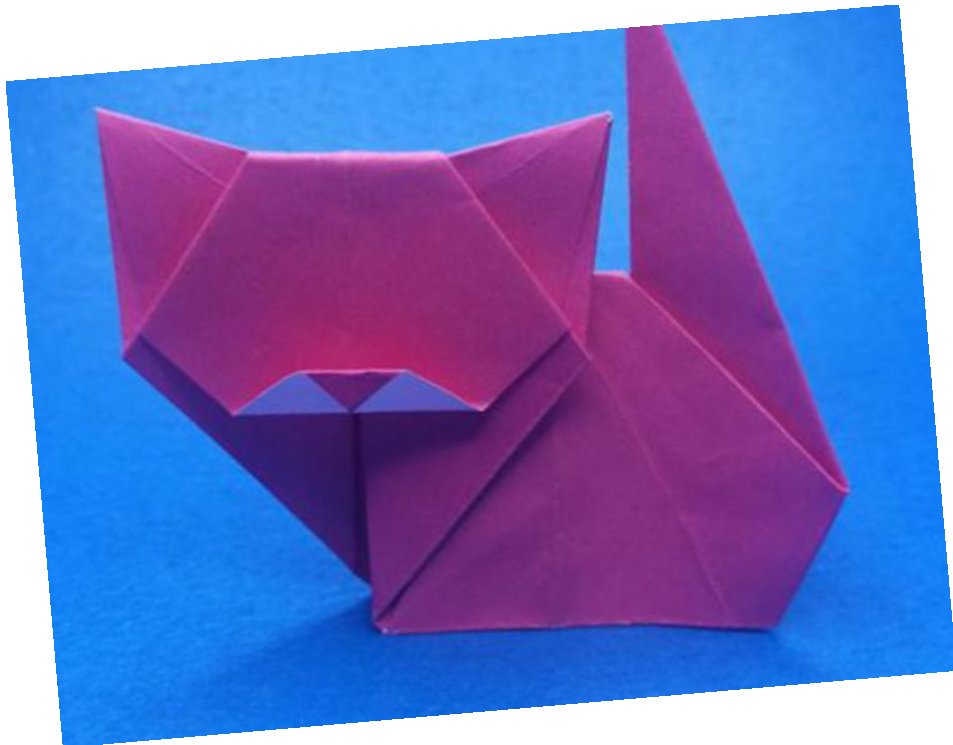


Open-ended problems

1. ΠΡΟΣΘΕΣΗ-ΑΦΑΙΡΕΣΗ ΑΡΙΘΜΩΝ



Problems without words and hands-on activities



3. ΕΠΛΑΣΗ ΠΡΟΒΛΗΜΑΤΟΣ-ΣΥΓΚΡΙΣΗ ΔΙΑΤΑΞΗ
(DESCRIPTIVE VS DEPICTIVE)

The image shows four balance scales arranged in a 2x2 grid. Each scale has a different object on the right pan and a different object on the left pan. The scales are tilted to show which side is heavier.

A B Γ Δ E

A > B

□ > □ > □ > □ > □

Multiple representations and applications in every-day life

Coloca cada pieza del puzzle en su lugar correcto, en su equivalencia con los números romanos.

NUMEROS ROMANOS

23	1456	1232	2347
901	1561	129	789
356	156	651	681
2311	3000	3156	145
512	431	341	411

DCLXXXI MMCCXXI CCCXLI CLVI
 DXII CDXI CCCLVI MMCCXLVII
 MDLXI DCLI XXIII
 MMMCLVI MCCXXXII MMM
 CDXXXI
 CXLV

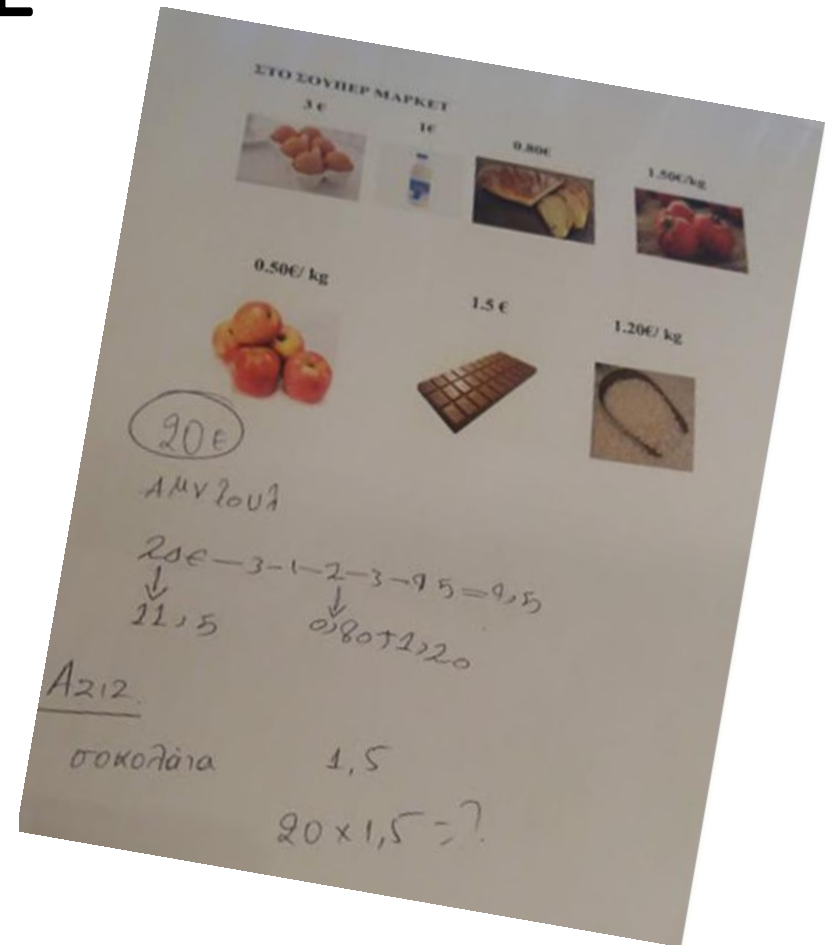
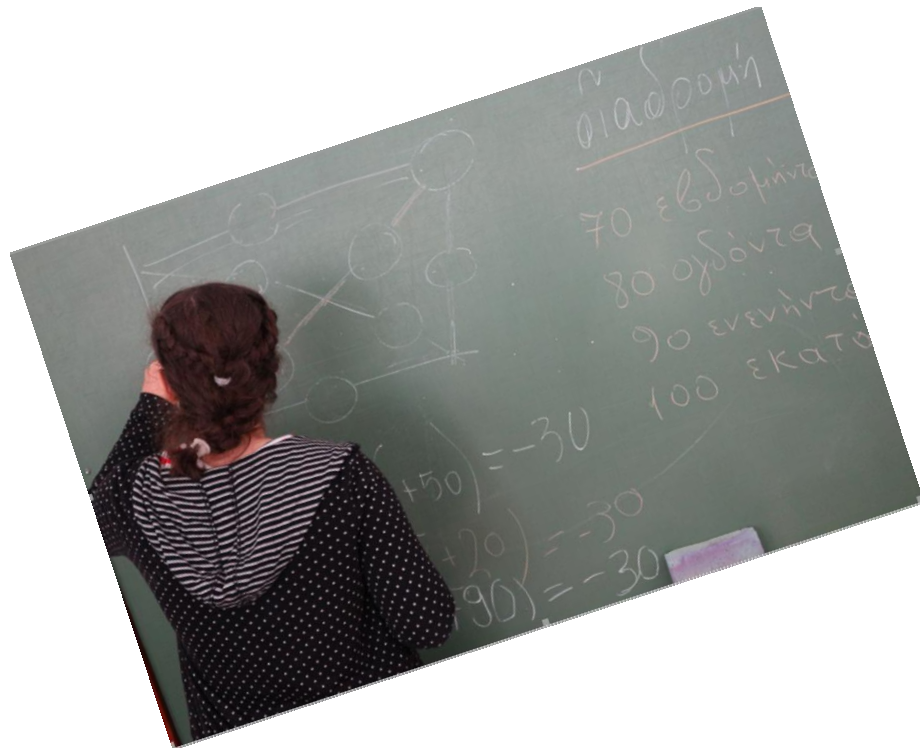


	1 €		1,5 €
	4 €		3 €
	0,5€		2 €
	5 €		0,8€

$0,80 \times 2 = 1,60$
 $1,60 + 1,80 = 3,40$
 $30€ - 3,40€ = 26,60€$

$10 - 1,05 = 8,95€$
 $8,95€ + 0,20€ = 9,15€$

Content Language Integrated Learning CLIL



Always aimed at gaining Mathematical knowledge, but language as well

Xperia B4

ΔΙΑΤΑΞΗ	ΕΠΙΘΑΝΕΙΑ	ΤΕΤΡΑΓΩΝΟ	ΤΕΤΡΑΠΛΩΝΗ ΠΙΣΤΑ
1x1		$1^2 = 1$	$\sqrt{1} = 1$
2x2		$2^2 = 4$	$\sqrt{4} = 2$
3x3		$3^2 = 9$	$\sqrt{9} = 3$
4x4		$4^2 = 16$	$\sqrt{16} = 4$
5x5		$5^2 = 25$	$\sqrt{25} = 5$
6x6		$6^2 = 36$	$\sqrt{36} = 6$
7x7		$7^2 = 49$	$\sqrt{49} = 7$

Mapis

ΔΙΑΤΑΞΗ	ΕΠΙΘΑΝΕΙΑ	ΤΕΤΡΑΓΩΝΟ	ΤΕΤΡΑΠΛΩΝΗ ΠΙΣΤΑ
1x1		$1^2 = 1$	$\sqrt{1} = 1$
2x2		$2^2 = 4$	$\sqrt{4} = 2$
3x3		$3^2 = 9$	$\sqrt{9} = 3$
4x4		$4^2 = 16$	$\sqrt{16} = 4$
5x5		$5^2 = 25$	$\sqrt{25} = 5$
6x6		$6^2 = 36$	$\sqrt{36} = 6$
7x7		$7^2 = 49$	$\sqrt{49} = 7$

Secret Code Riddles

Try and solve each riddle. To check your answer, solve each addition or subtraction problem and write the letter from the code box that corresponds to your answer in the shaded box.

Hint: pay attention to the + and - signs.

a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
38	6	22	2	38	6	18	32	11	12	30	16	42													

a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
44	52	30	44	4	34	42	24	41	46	36	52	20													

If your uncle's sister is not your aunt, what relation is she to you?

30	25	12	2	32	40	12	15	17	2
+22	+25	+12	+2	+26	+10	+10	+17	+22	+2

What can pass before the sun without making a shadow?

36	16	23	23	20	7	1
+19	+16	+23	+23	+20	+7	+1

What room can no one enter?

50	28	44	38	12	75	67	54
-2	-4	-12	-6	-8	-25	-17	-6

What falls often in the winter but never gets hurt?

30	21	16	23
+6	-7	+24	+23

Handwritten solutions and calculations are visible on the right side of the page.

Looking back to

EDUCATIONAL AIMS AND OBJECTIVES OF THE MODULE

The main aim of the module is to consolidate skills of “curricular elaboration” for every Teacher who teaches Mathematics; these elaborations are targeted – and therefore validated as such – towards the Teachers’ each-time student-population.

To that, skills and techniques of formative assessment (and corresponding classroom-material) are required.

A side-aim is to embed didactical techniques and views to the set of didactical tools already at hand for Teachers, so as to facilitate their ability and willingness to assess and elaborate differentiated approaches to their own teaching methods and material.

A special aim is to upgrade the consciousness that “**multiple representations**” (inherent in whatever conceptualization of Mathematics as an episteme one accepts) provide for didactical conceptualizations, along with posing “problems” in the general consideration of the term, and open approaches to teaching (as, e.g. approaches of “theory born via the teaching-action itself”) that support differentiated engagements with learning and teaching.

Along with the above, **we aim at adding value to teaching** via

the adoption of a widening of the actively-learning community, either via “cooperative learning” and “peer-tutoring” (the latter would/could preferably facilitate inclusiveness),

or by introducing thematics / problems / tasks of an “open nature” (such as cultural or social thematics could give rise to), in order to engage a wider audience (as, e.g. families or/and close surroundings) in the 'learning activity; that would support our effort towards schooling'.

The educational purpose and objectives of this module

Seem to be covered beyond all, even the pedagogical team's, expectations.

For future work we suggest for research,

Which was the adding value for the other students of the mixed classes?

Have the trainees adopted the methods, attitudes and beliefs they formed in their assignments, in their teaching style after the Project was completed?

What was the participation of all the members of the school community in rethinking the social inclusion?

To what extent the refugee students' environment contributed on their whole learning process?

What was the refugee/migrant background students' process in learning ?

In which ways is the Project going to be used for the benefits of schools?

Education is not preparation of life, education is the life itself

JOHN DEWEY

THANK YOU ALL